BenQ M31

Digital Camcorder User Manual

Welcome

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<Note>

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Preface

Congratulations on your purchase of this advanced camcorder (digital video camera). Ensure that you read this manual carefully and keep it in a safe place for future reference.

About This Manual

This manual is designed to assist you in using your new camcorder. All information presented is as accurate as possible but is subject to change without notice.

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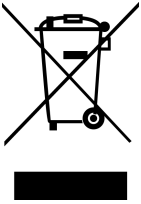
Disposal of Waste Electrical and Electronic Equipment by users in private households in the European Union.



This symbol on the product or on the packaging indicates that this can not be disposed of as household waste. You must dispose of your waste equipment by handing it over to the applicable take-back scheme for the recycling of electrical and electronic equipment. For more information about recycling of this equipment, please contact your city office, the shop where you purchased the equipment or your household waste disposal service. The recycling of materials will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and environment.

CE Regulatory Notice

We,

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TEL/Fax: +31 (499) 750 500 /+31 (499) 750-599

is herewith confirmed to comply with the requirements set out in the Council Directives on the Approximation of the Laws of the Member States relating Electromagnetic Compatibility (2004/108/EC); the Low Voltage Directive (2006/95/EC); the Restriction of The Use of Certain Hazardous Substances in Electrical And Electronic Equipment Directive (2002/95/EC), Turkish EEE Directive; the Commission Regulation (EC) No 1275/2008 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to eco-design requirements for standby and off mode electric power consumption of electrical and electronic household and office equipment, and the Directive 2009/125/EC of the European

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parliament and of the council establishing a framework for the setting of eco-design requirements for energy-related products.

FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

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Safety Warning and Notice

Before operating the camcorder, please make sure that you read and fully understand the content in this section. If you ignore and violate all safety warning notices indicated in this section, the camcorder warranty may be void. Meanwhile, not only the camcorder but also you and all other people and things around you may be severely damaged, injured, or even placed in danger of death.

For your safety

1. Do not attempt to charge any other battery with this camcorder.

2. Operate the power supply only on even surfaces, without any cover. Air circulation around the product must be always given. The maximum ambient temperature is 40 ºC.

3. Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

4. Keep the camcorder and its accessories out of the reach of babies, toddlers, and children. In particular, small parts such as memory card and battery could be easily dismantled and swallowed by them.

5. Use only the original accessories to avoid possible risks to health and property, and thus meet all related legal regulations.

6. Do not dismantle the camcorder under any circumstances.

7. When using the flash, do not go too close to human eyes (particularly for babies, toddlers, and children) or animal eyes. Otherwise, when the flash fires, the light may cause damage to human eyes or irritate animals.

8. Batteries could explode, for instance. All batteries can cause property damage, injury or burns if a conductive material such

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as jewelry, keys or beaded chains touch exposed terminals. The material may complete an electrical circuit and become quite hot. Exercise care in handling any batteries, particularly when placing it inside your pocket, purse, or other container with metal objects. Do not dispose of batteries in fire as they may explode.

9. To prevent electric shock, do not attempt to disassemble or repair your camcorder by yourself.

10. Some camcorder models accept non-rechargeable batteries. When using these batteries, do not charge them. Otherwise, dangers such as explosion and fire may occur.

Warranty

1. Warranty is void if damage or system failure occurred due to outside factors such as collision, fire, flood, dirt, sewage, earthquake, and other force majeure events as well as incorrect usage of electricity or use of non-original accessories.

2. It is the sole responsibility of the user if problems (such as data loss and system failure) occurred due to non-factory installed software, parts, and/or non-original accessories.

3. Do not change the camcorder. Any changes to the camcorder invalidate the warranty.

Taking care of your camcorder

1. Always keep the camcorder in a leather case or pouch for better protection against splashes, dust, and collision.

2. The only way of replacing the battery and the memory card is to open the Battery / Memory cover.

3. Dispose of unwanted batteries and camcorders as permitted by the laws in your countries.

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4. Water may cause a fire or electric shock. Therefore, store your camcorder in a dry place.

5. If your camcorder becomes wet, wipe it with a dry cloth as soon as possible.

6. Salt or seawater may cause severe camcorder damage.

7. Do not drop, knock, or shake the camcorder. A rude behavior of using the camcorder may damage the internal electronic circuit board or deform the lens shape.

8. Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the camcorder.

9. Finger grease may be left on the camcorder lens and will result in unclear images or videos. To avoid this problem, be sure to clean the camcorder lens before taking pictures or recording videos. You should also clean the camcorder lens on a regular basis.

10. If the lens is dirty, use a lens brush or soft cloth to clean the lens.

11. Do not touch the lens with your fingers.

12. If a foreign substance or water gets in your camcorder, please turn the power off immediately and disconnect the batteries. Next, remove the foreign substance or water and send it to the maintenance center.

13. Whenever there is data in the external memory card, you should make a backup copy to a computer or disc. So, you can have a backup solution if data loss occurs.

14. All original accessories are designed only for use with this camcorder model you purchased. Do not use these accessories with other camcorder models or camcorders of other brands to avoid unpredictable danger or damage.

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15. Before initial use of a memory card, always use the camcorder to format the card first.

16. Remember to slide the write-protect tab (if available) to the unlock position. Otherwise, all data (if any) on the memory card is protected and the card cannot be edited or formatted.

Operating environment

1. Do not use or store your camcorder in the environments listed below:
   - Direct sunlight
   - Dusty places
   - Next to an air conditioner, electric heater or other heat sources
   - In a closed car that is in direct sunlight
   - Unstable locations
2. Do not use your camcorder outdoors when it is raining or snowing.
3. Do not use your camcorder in or near water.
4. The camcorder operating temperature is between 0 and 40 degrees Celsius. It is normal for the operating time to be shortened when the temperature is low.
5. The capacity of your camcorder batteries will reduce each time it is charged/emptied.
6. Storage at too high or low temperatures will also result in a gradual capacity loss. As a result, the operating time of your camcorder may be considerably reduced.
7. It is normal for the camcorder to become warm during operation, because the camcorder casing can conduct heat.

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1 Overall Introduction

Please read this chapter to understand the features and functions of this Digital Video Camera. This chapter also includes the description of system requirement, package contents, and hardware components.

1.1 System Requirements

This Digital Video Camera requires a unit of computer with the following specifications:

- Windows® XP/Vista/7 operating system or Mac OS 10.3 ~10.4
- A CPU of at least the equivalent of Intel® Pentium 4 2.8GHz l
- At least 512 MB of RAM
- Standard USB 1.1 connection port or higher
- At least 64MB of display card

Note:
USB 1.1 allows you to transmit files to the host, but using USB 2.0 connection port could increase the transmission speed far faster.

1.2 Features

This Digital Video Camera provides many features and functions including:

- High resolution pixel camera (maximum 16 million pixels)
- Touch screen
- Time lapse
- Pre-recording
- Dual streams

In addition, this video camera has USB mass storage hard disk, and SD card reader.

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1.3 Digital Video Camera & Accessories

This package should contain the following items. In case there is any missing or damaged item, please contact your dealer immediately.

1. Digital video camera

2. Quick Guide

3. Software CD

4. HDMI cable

5. AV cable

6. USB cable

7. Lithium-Ion battery

8. Adaptor

9. Hand Strap

10. Pouch

Note:

Available accessories depend on the actual items shipped and may vary from the list above.

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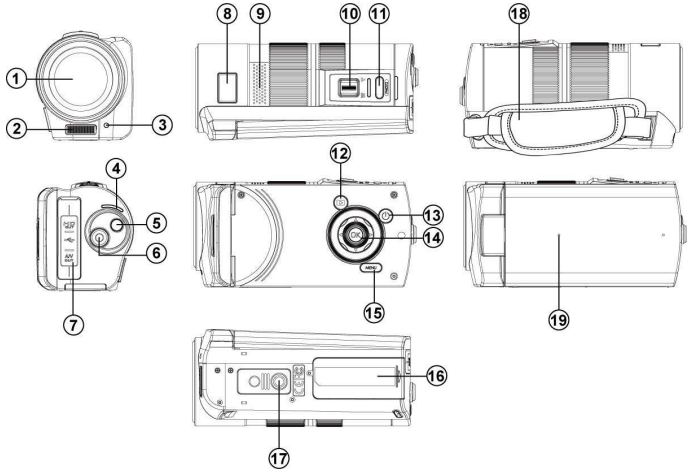
1.4 External View



1	Lens	11	Shutter Button
2	Flash Light	12	Playback Button
3	Self-timer Indicator	13	Power Button
4	LED Indicator	14	OK Button
5	Mode Button	15	Menu Button
6	Recording Button	16	Battery / Memory Card Compartment
7	USB/HDMI/TV/Audio Output	17	Tripod socket
8	Status Display	18	Hand Strap
9	Speaker	19	Microphone
10	Zoom Button		

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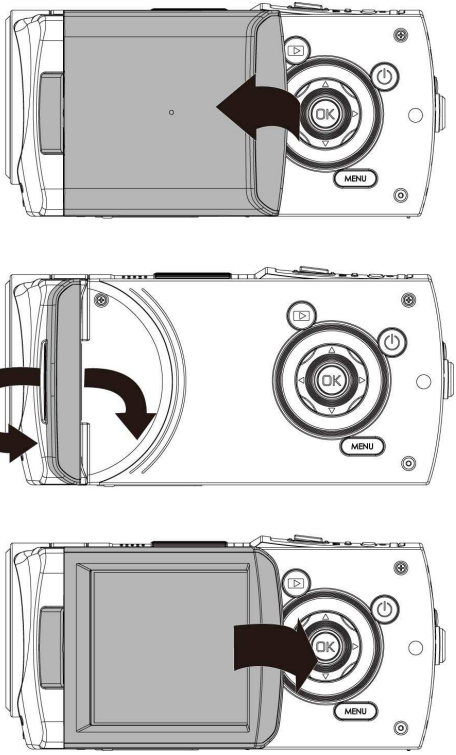
1.5 Adjusting LCD Display

Before taking pictures or recording movie clips, please rotate according to the illustrations below.



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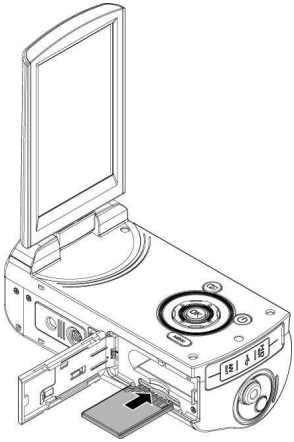
2 Getting Started

2.1 Inserting SD Card

1. Insert an SD card and make sure facing the touching face downward.



Note:
Do not remove or insert an SD card when the power of the Digital Video Camera is on to avoid damaging files.

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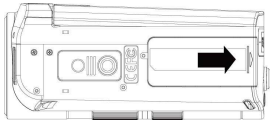
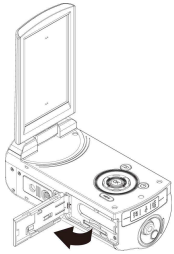
2.2 Loading the Battery

Please use only the battery provided or recommended by the manufacturer or dealer.

Note:
Insert the battery correctly according to this description. Error in inserting the battery could result in non-repairable damage to this Digital Video Camera.

1. Open battery cover.





Battery / Power Status Indicator:

	Battery full
	Battery half full
	Battery empty
	The device power is supplied by DC input. (The battery is not charged.)

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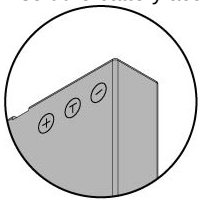
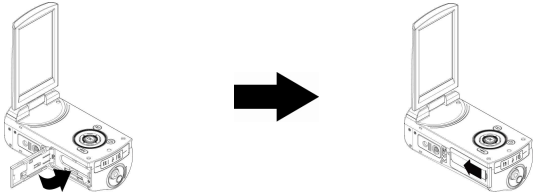
2. Insert the battery according to the illustration.



3. Close battery cover.



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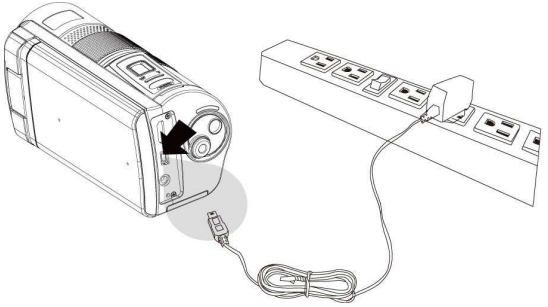
2.3 Charging the Battery

You can use the adaptor attached to charge the Lithium-Ion battery.

Insert the Lithium-Ion battery into the Digital Video Camera and connect to the cable of the adaptor. (You can also charge the battery by using the USB cable from a computer.)



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2.4 The Gestures of Using the Touch Screen

2.4.1 Single touch

You can touch hotkey to change settings as shown below (Take DV function as an example).

- E.I.S. (Electronic Image Stabilizer): on / off
- AF lock: on / off
- Focus mode:
  (Auto Focus / Touch AF
- Menu

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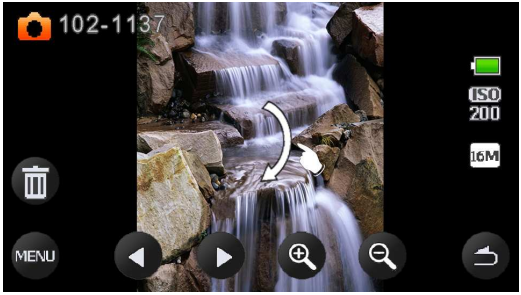
2.4.2 Slide

Slide right or left to view the previous file or the next file under the [Playback] Mode.

2.4.3 Rotate

Under [Playback] Mode, you can rotate the image by 90°step as shown below.



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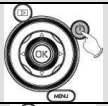
2.5 Buttons & Functions

Description	Button	Function
Power Button		To turn ON/OFF the Digital Video Camera.
Menu Button		To display the main OSD menu.
MODE Button		There are three operating modes for the Digital Video Camera: DV Mode, DSC Mode, and Voice Recording Mode. Press the Mode button to switch to different modes.
OK Button		To confirm all settings.
4-Way Direction Button		Press this button Left/Right to adjust the EV compensation; press this button Up in DSC mode to turn on/off the flash light: off, auto, fill-in
Recording Button		To take movie clips and voice recordings.

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Shutter Button		**To take images.**
Zoom Button		**This Digital Video Camera is equipped with 10X Optical Zoom: press the button Right (T) to pull in the distance of the subject, or press the button Left (W) to move away the distance from the object.**
Playback Button		**To enter Playback mode.**

2.6 About LED Indicators

Below table describes the meaning of the camera LED indicators:

	Indicator Color	Definition
Power	**Green**	**Turning power on.**
	Green blinking	**Flash is charging.**
Recording	**Green blinking**	**Recording**
Self-timer	**Red blinking**	**Start of Self-timer.**
Battery charging	**Green**	**The battery is charging (will take about 3.5 hours to complete).**
Battery charging	**Off**	**Battery charging is complete.**

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2.7 Initial Settings Before Use

2.7.1 Setting Language

1. It is automatic to move on to Language setting after setting Date/Time.
2. Press the [4-Way Direction] Button left/right to select the language you want to use.
3. Press OK Button to confirm the setting.

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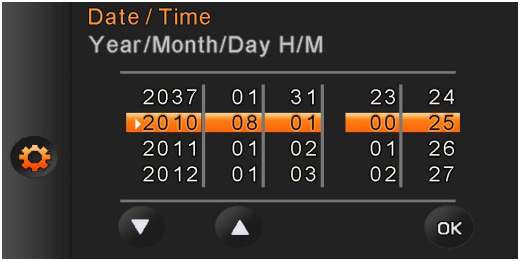
2.7.2 Setting Date and Time

1. Turn [On] the Digital Video Camera to set up the date and time for the first time. Set the date and time by moving up/down button or touch the screen to select.
2. Press the [4-Way Direction] Button up/right to select each column. Then press left/down or touch the screen to select a value.
3. Press OK .



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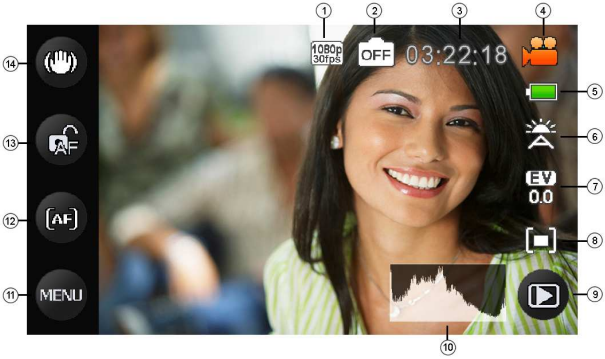
3 LCD Display Information

3.1 In DV Mode

Please refer to the following table.



1	Resolution indicator
2	Scene mode Indicator
3	Remaining recording time indicator
4	DV mode indicator
5	Battery status indicator
6	White balance indicator
7	Exposure compensation indicator
8	Metering mode
9	Playback button
10	Histogram indicator
11	Menu button

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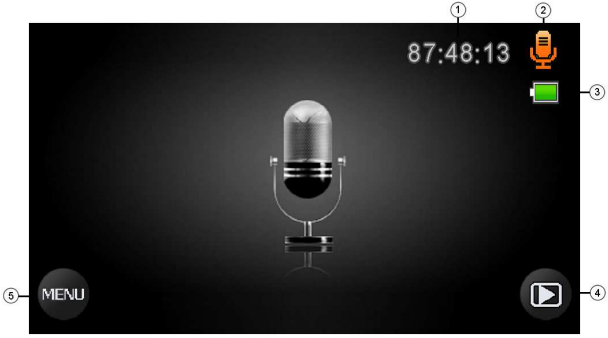
12	Focus mode button
13	Auto Focus button
14	E.I.S. button (On/Off)

3.2 In Voice Recording Mode

Please refer to the following table.



1	Recording time left indicator
2	Voice Recording Mode indicator
3	Battery status indicator
4	Playback button
5	Menu button

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3.3 In DSC Mode

Please refer to the following table.

1	Resolution indicator
2	Scene Mode indicator
3	Number of pictures left
4	DSC Mode indicator
5	Battery indicator
6	White balance indicator
7	EV compensation indicator
8	Metering mode
9	Playback button
10	Histogram indicator
11	Menu button

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12	Flashlight mode selection (off/auto/fill-in)
13	Focus mode button
14	Self-timer indicator
15	Face Detection
16	Drive mode

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4 Using the Camera

4.1 Shooting a Movie Clip

1. [DV] mode is the default setting after you power [On] the Digital Video Camera.
2. Press the [Recording] Button to start/stop recording.
3. The Digital Video Camera will store the movie clip automatically.

4.2 Pause Recording a Movie Clip

1. Press OK Button during recording a movie clip. The video will pause recording immediately.
2. Press OK Button again to start recording a movie clip.
3. The Digital Video Camera will store the video automatically.

4.3 Shooting a photo

1. Turn [On] the Digital Video Camera, press [Mode] Button to switch to [DSC] mode.
2. Press [Shutter] Button to take pictures.
3. The Digital Video Camera will store the image automatically.

4.4 Voice Recording Mode

1. Turn [On] the Digital Video Camera, press [Mode] Button to switch to [Voice Recording] mode.
2. Press [Recording] Button to start/stop voice recording.

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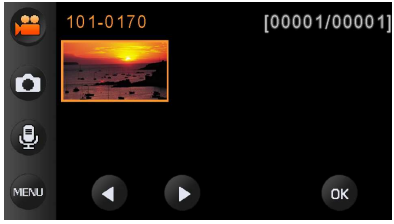
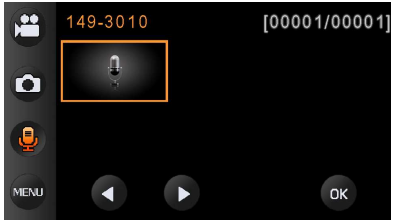
4.5 Movie Clip / Voice Clip Playback

1. In [DV]/ [DSC]/ [Voice Recording] Recording Mode, press [Playback] Button to display recently stored files on the LCD screen.



Movie clip playback mode



Voice clip playback mode

2. Press [4-Way Direction] Button up/down, left/right to view stored files. Press OK Button to playback or touch the screen to select Playback of the file.

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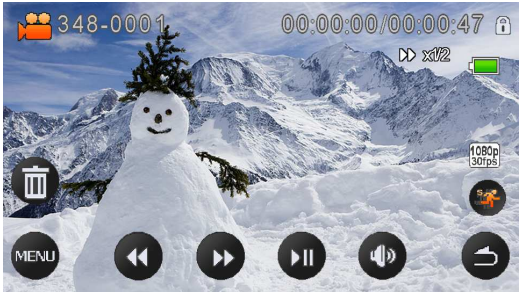
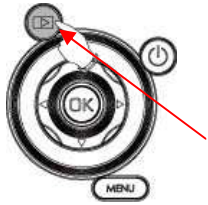


3. To pause the Playback of file, press the [Recording] Button or touch the screen icon .

4. Press [Playback] Button again to return to DV/DSC/Voice Recording Mode.



Press [Playback] Button again to return to DV/DSC/Voice Recording Mode.

5. You can also playback the movie clip in different speeds by touching (ON/OFF) the screen icon .

Playback speed is as below when the Slow Motion is **"on":**		
Rewind (1/2X, 1/4X, 1/8X, 1/16X, 1/32X, or 1/64X)	Playback (Normal 1X)	Forward (2X, 4X, 8X, 16X, 32X, or 64X)

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6. Capture the image from movie clip playback.

   Press [Shutter] Button in replaying the movie clip.

The Digital Video Camera will store captured still images automatically in the image size (resolution) you select (1920 x 1080, 1280 x 720, 848 x 480, or 432 x 240).

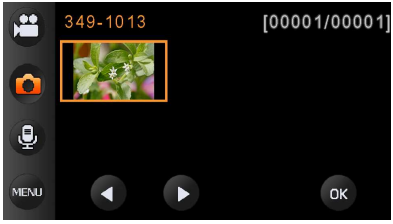
4.6 Shooting / Playback Photos

4.6.1 Shooting Photos

1. Turn [On] the power and adjust the [Mode] Button to [DSC] Mode.
2. Press [Shutter] Button to capture images which will be stored automatically.

4.6.2 Playback Photos

1. In [DSC] Mode, press [Playback] Button to display the images on the LCD screen.
2. Press [4-Way Direction] Button up/down or left/right to view the stored files. Press OK Button or touch the screen to playback the image.



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3. Touch the screen (or) to enlarge/shrink the image, then you can move the image up/down or left/right.
4. Press [Playback] Button again to return to [DSC] Mode.

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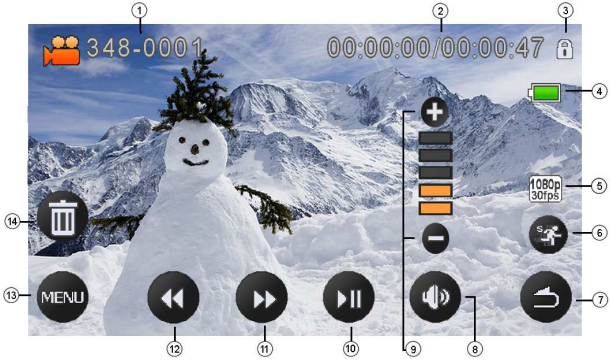
5 LCD Display Information

5.1 DV Playback Mode

Please refer to the following table.



1	Folder and file number
2	Length of each Movie Clip
3	File Protection indicator
4	Battery status indicator
5	Resolution indicator
6	Slow motion playback button
7	Return button
8	Sound volume touch icons
9	Volume (“+” for up and “-“ for down)
10	Playback/Pause button
11	Fast forward playback button

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12	Fast rewind playback button
13	Menu button
14	Delete button

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5.2 Voice Recording Playback Mode

Please refer to the following table.

1	Folder and file number
2	Length of each voice clip
3	File Protection indicator
4	Battery status indicator
5	Return button
6	Sound volume touch icons
7	Volume (“+” for up and “-“ for down)
8	Playback/Pause button
9	Fast forward playback button
10	Fast rewind playback button
11	Menu button
12	Delete button

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5.3 DSC Playback Mode

Please refer to the following table.

1	Folder and file number
2	DPOF(Digital Print Order Format) indicator
3	File Protection indicator
4	Battery status indicator
5	ISO value
6	Resolution indicator
7	Return button
8	Zoom-Out indicator
9	Zoom-In indicator
10	Next file
11	Previous file
12	Menu button
13	Delete button

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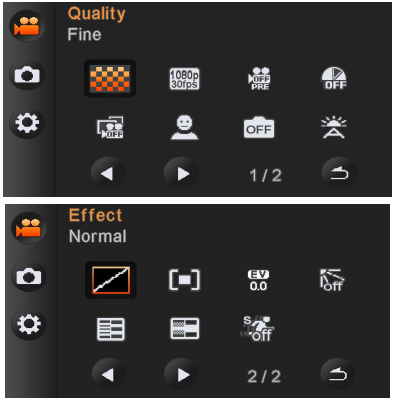
6 Menu Options

Please read this chapter to understand the settings and advanced operations of this Digital Video Camera.

6.1 Menus of Movie Clip Mode

Press [MENU] button to display menu options of movie clip under the [DV] mode.



6.1.1 Quality

1. Turn [On] the Digital Video Camera and ensure it is in the [DV] mode.
2. Press [MENU] Button and press [4-way Direction] Button to select the [Quality] item. Press OK Button to display submenu; or touch the screen to select the item.
3. Press [4-way Direction] Button to select [Super Fine], [Fine], or [Normal]. Press OK Button or touch the screen to confirm the setting.

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6.1.2 Resolution

1. Power [On] the Digital Video Camera and make sure it is in the [DV] mode.
2. Press [MENU] Button and press [4-way Direction] Button to select the [Resolution] item. Press OK Button or touch the screen to display submenu.
3. Use [4-way Direction] Button to select and press OK Button to confirm; or touch the screen to select the item.

NTSC		PAL	
	1920 x 1080 30fps 16:9		1920 x 1080 25fps 16:9
	1280 x 720 60fps 16:9		1280 x 720 50fps 16:9
	1280 x 720 30fps 16:9		1280 x 720 25fps 16:9
	848 x 480 60fps 16:9		848 x 480 50fps 16:9
	848 x 480 30fps 16:9		848 x 480 25fps 16:9
	432 x 240 240fps 16:9		432 x 240 200fps 16:9

Note:
The resolution will be different due to various TV Type settings. Please refer to chapter 6.5.1 "TV Type".

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6.1.3 Pre-recording

1. Power [On] the Digital Video Camera and make sure it is in the [DV] mode.
2. Press [MENU] Button and press [4-way Direction] Button to select the [Pre-recording] item. Press OK Button or touch the screen to display submenu.
3. Use [4-way Direction] Button to choose [Off]/[On], and press OK Button or click the screen to confirm the setting.

6.1.4 Time Lapse

1. Power [On] the Digital Video Camera and ensure it is in the [DV] mode.
2. Press [MENU] Button and press [4-way Direction] Button to choose the [Time Lapse] item. Press OK Button or touch the screen to display submenu.
3. Use [4-way Direction] Button to select [Off], [1 minute], [5 minutes], or [30 minutes]. Press OK Button or touch the screen to confirm.

6.1.5 Dual Streams

1. Power [On] the Digital Video Camera and make sure it is in the [DV] mode.
2. Press [MENU] Button and press [4-way Direction] Button to select the [Dual streams] item. Press OK Button or touch the screen to display submenu.
3. Press [4-way Direction] Button to select [Off]/ [On]. Press OK Button or touch the screen to confirm the setting.

Note:
Dual streams only support these video formats:
- **NTSC: 1920 x 1080 30fps, 1280 x 720 60fps, and 1280 x 720 30fps.**
- **PAL: 1920 x 1080 25fps, 1280 x 720 50fps, and 1280 x 720 25fps.**

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6.1.6 Face Detection

1. Power [On] the Digital Video Camera and ensure it is in the [DV] mode.
2. Press [MENU] Button and press [4-way Direction] Button to select the [Face Detection] item. Press OK Button or touch the screen to display submenu.
3. Press [4-way Direction] Button to select [Off]/ [On]. Press OK Button or click the screen to confirm.

6.1.7 Scene Mode

1. Power [On] the Digital Video Camera and make sure it is in the [DV] mode.
2. Press [MENU] Button and press [4-way Direction] Button to select the [Scene Mode] item. Press OK Button to display submenu; or touch the screen to choose the item.
3. Press [4-way Direction] Button to select [Auto], [Night], [Sports], [Landscape], [Portrait], [Sunset], [Sand, Snow], [Flower], [Firework], or [Aquarium]. Press OK Button or touch the screen to confirm.

6.1.8 White Balance

1. Power [On] the Digital Video Camera and ensure it is in the [DV] mode.
2. Press [MENU] Button and press [4-way Direction] Button to select the [White Balance] item. Press OK Button to display submenu; or touch the panel to select the item.
3. Press [4-way Direction] Button to select [Auto], [Incandescent], [Daylight], [Cloudy], [Fluorescent], or [Preset]. Press OK Button or touch the panel to confirm.

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Auto	Automatic white balance adjustment.
Incandescent	The setting is suitable for Incandescent lamp lighting, or environments with dark light.
Daylight	For daylight recording.
Cloudy	For cloudy or shady environments.
Fluorescent	For fluorescent lamp lighting, or environments with bright light.
Preset	Preset on a plain white background for more realistic white balance value.

6.1.9 Effect

1. Power [On] the Digital Video Camera and make sure it is in the [DV] mode.
2. Press [MENU] Button and press [4-way Direction] Button to select the [Effect] item. Press OK Button to display submenu; or touch the screen to select the item.
3. Press [4-way Direction] Button to select [Normal], [Art], [Sepia], [Negative], [B/W (Black/White)], or [Vivid]. Press OK Button to confirm; or touch the screen to select the item.

Normal	Recordings with natural color.
Art	Recordings with oil painting color.
Sepia	Recordings with sepia-toned color.
Negative	Recordings with negative color.
B/W	Recordings with black/white color.
Vivid	Recordings with bright color.

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6.1.10 Metering

1. Power [On] the Digital Video Camera and make sure it is in the [DV] mode.
2. Press [MENU] Button and press [4-way Direction] Button to select the [Metering] item. Press OK Button or touch the screen to display submenu.
3. Press [4-way Direction] Button to select [Center], [Average], or [Spot]. Press OK Button or touch the screen to confirm.

Center	To preserve background details while letting lighting conditions at the center of the frame define exposure.
Averaged	For exposure to be evenly distributed around the selected frame.
Spot	To ensure correct exposure for the object even if the background is very bright or very dark.

6.1.11 EV Compensation

Use this function to adjust the value of EV compensation, which is ranged from -2.0EV to +2.0EV (at 0.3EV increment). The higher the EV value, the brighter the image will be.

1. Power [On] the Digital Video Camera and ensure it is in the [DV] mode.
2. Press [MENU] Button and then press [4-way Direction] Button to select the [EV Compensation] item. Press OK Button or touch the screen to display submenu.
3. Press [4-way Direction] Button to increase/decrease the value. Press OK Button or touch the screen to confirm.

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6.1.12 Backlight

1. Turn [On] the Digital Video Camera and make sure it is in the [DV] mode.
2. Press [MENU] Button and press [4-way Direction] Button to select the [Backlight] item. Press OK Button or touch the screen to display submenu.
3. Press [4-way Direction] Button to select [Off]/ [On]. Press OK Button or touch the screen to confirm.

6.1.13 Contrast

1. Turn [On] the Digital Video Camera and ensure it is in the [DV] mode.
2. Press [MENU] Button and press [4-way Direction] Button to select the [Contrast] item. Press OK Button or touch the screen to display submenu.
3. Press the [4-way Direction] Button to select [Normal], [High], or [Low]. Press [MENU] Button or touch the screen to confirm.

Normal	For normal scenes.
High	For brighter scenes.
Low	For darker scenes.

6.1.14 Sharpness

1. Power [On] the Digital Video Camera and ensure it is in the [DV] mode.
2. Press [MENU] Button and press [4-way Direction] Button to select the [Sharpness] item. Press OK Button or touch the screen to display submenu.
3. Press [4-way Direction] Button to select [Normal], [High], or [Low]. Press OK Button or touch the screen to confirm.

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Normal	For normal scenes.
High	For sharper scenes.
Low	For softer scenes.

6.1.15 Motion Detection

1. Power [On] the Digital Video Camera and make sure it is in the [DV] mode.
2. Press [MENU] Button and press [4-way Direction] Button to select the [Motion Detection] item. Press OK Button or touch the screen to display submenu.
3. Press [4-way Direction] Button to select [On] or [Off]. Press OK Button or touch the screen to confirm.

The following image will be shown when the motion detection function is on:

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If the pillar rises to peak, the Digital Video Camera will take movie clips automatically without pressing the recording button.

If the pillar disappears, the Digital Video Camera will end taking movie clips automatically without pressing the recording button.

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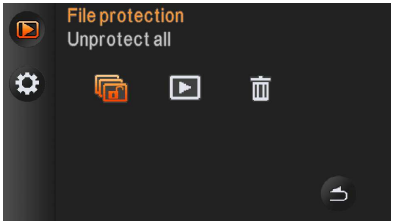
6.2 Menu Options of Movie Clip/Voice Playback

When in [Movie Clip]/ [Voice] playback mode, press the [MENU] Button to show the movie clip options menu.

6.2.1 File Protection

1. Power [On] the Digital Video Camera and make sure it is in the [Movie Clip]/ [Voice] Playback mode.
2. Press [MENU] Button. Then, press [4-way Direction] Button or touch the screen to select the [File Protection] item. Press OK Button or touch the screen to display submenu.



3. The icon [ ] represents the file is under protection.

Protect One	Protect one file.
Unprotect One	Unprotect one file.
Protect All	Protect all files.
Unprotect All	Unprotect all files.

Note：To unlock the file from Protect, repeat steps stated above. After the file is unlocked from Protect mode, the locked [ ] icon will disappear.

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6.2.2 Play Options

1. Power [On] the Digital Video Camera and make sure it is in the [Movie Clip]/ [Voice] playback mode.
2. Press [MENU] Button. Then, press [4-way Direction] Button or touch the screen to select the [Play Options] item. Press OK Button or touch the screen to display submenu.
3. Use [4-way Direction] Button to select [Play One], [Play All], [Repeat One], or [Repeat All], then press OK Button or touch the screen to confirm. The movie clip will playback automatically.

Play One	To playback one file.
Play All	To playback all files.
Repeat One	To replay single file.
Repeat All	To replay all files.

6.2.3 Delete

1. Power [On] the Digital Video Camera and make sure it is in the [Movie Clip]/ [Voice] playback mode.
2. Choose the to-be-deleted file and press [MENU] Button/ press [4-way Direction] Button down to select the [Delete] item; or touch the screen to select the item.
3. Use [4-way Direction] Button to select [Delete One], [Delete All], or [Delete Selections]; then press OK Button or touch the screen to confirm.
4. Press [4-way Direction] Button or touch the screen to select [V]/ [X] and press OK Button to delete file(s).
5. You can choose the [Delete Selections] item to delete certain file.

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Delete One	Delete one file.
Delete All	Delete all files.
Delete Selections	Select the file and delete.

Note:
The files cannot be recovered once deleted. Therefore, please make sure you have a backup file before delete. The protect files will not be able to delete. You must unlock the file before deleting it.

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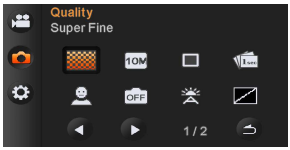
6.3 Menu Options of Camera Mode

During [DSC] Mode, press [MENU] Button to display camera mode option menu.



6.3.1 Quality

1. Turn [On] the Digital Video Camera and ensure it is in the [DSC] mode.
2. Press [MENU] Button and press [4-way Direction] Button to select the [Quality] item. Press OK Button or touch the screen to display submenu.
3. Press [4-way Direction] Button to select [Super Fine], [Fine], or [Normal]. Press OK Button or touch the screen to confirm the setting.

6.3.2 Photo Size

1. Power [On] the Digital Video Camera and make sure it is in the [DSC] mode.
2. Press [MENU] Button and press [4-way Direction] Button to select the [Photo Size] item. Press OK Button or touch the screen to display submenu.
3. Press [4-way Direction] Button to select [16M], [10M], [3:2], [16:9], or [2M]. Press OK Button or touch the screen to confirm.

16M 16M	4608 x 3456 pixels (Interpolation)
10M 10M	3648 x 2736 pixels

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3:2 3:2	3648 x 2432 pixels
16:9 16:9	3648 x 2048 pixels
2M 2M	1824 x 1360 pixels

6.3.3 Capture Mode

1. Power [On] the Digital Video Camera and make sure it is in the [DSC] mode.
2. Press [MENU] Button and then press [4-way Direction] Button to select the [Capture Mode] item. Press OK Button or touch the screen to display submenu.
3. Press [4-way Direction] Button to select [Normal], [Continue Shot], [AEB mode], [Fast Cont.], or [Super Fast Cont.]. Press OK Button or touch the screen to confirm.

Normal	Shoot single photo.
Continue Shot	Shoot photos continually.
AEB mode	Shoot three photos continually.(For brighter, normal, darker photo each)
Fast Cont.	Shoot 10 photos continually.
Super Fast Cont.	Shoot 30 photos continually.

6.3.4 Instant View

1. Turn [On] the Digital Video Camera and ensure it is in the [DSC] mode.
2. Press [MENU] Button and press [4-way Direction] Button to select the [Instant View] item. Press OK Button to display submenu or touch the screen to select the item.

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3. Press [4-way Direction] Button to select [Off], [1 second], [3 seconds], or [5 seconds]. Press OK Button or touch the screen to confirm.

6.3.5 Face Detection

1. Power [On] the Digital Video Camera and make sure it is in the [DSC] mode.
2. Press [MENU] Button and press [4-way Direction] Button to select the [Face Detection] item. Press OK Button or touch the screen to display submenu.
3. Press [4-way Direction] Button to select [Off], or [On]. Press OK Button or touch the screen to confirm.

6.3.6 Scene Mode

1. Turn [On] the Digital Video Camera and make sure it is in the [DSC] mode.
2. Press [MENU] Button and press [4-way Direction] Button to select the [Scene Mode] item. Press OK Button or touch the screen to display submenu.
3. Press [4-way Direction] Button to select [Auto], [Night], [Sports], [Landscape], [Portrait], [Sunset], [Sand, Snow], [Flower], [Firework], or [Aquarium]. Press OK Button or touch the screen to confirm.

6.3.7 White Balance

1. Power [On] the Digital Video Camera and make sure it is in the [DSC] mode.
2. Press [MENU] Button and press [4-way Direction] Button to select the [White Balance] item. Press OK Button or touch the screen to display submenu.

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3. Press [4-way Direction] Button to select [Auto], [Incandescent], [Daylight], [Cloudy], [Fluorescent], or [Preset]. Press OK Button or touch the screen to confirm.

Auto	Automatic white balance adjustment.
Incandescent	The setting is suitable for Incandescent lamp lighting, or environments with dark light.
Daylight	For daylight recording.
Cloudy	For cloudy or shady environments.
Fluorescent	For fluorescent lamp lighting, or environments with bright light.
Preset	Preset on a plain white background for more realistic white balance value.

6.3.8 Effect

1. Turn [On] the Digital Video Camera and ensure it is in the [DSC] mode.
2. Press [MENU] Button and press [4-way Direction] Button to select the [Effect] item. Press OK Button or click the screen to display submenu.
3. Press [4-way Direction] Button to select [Normal], [Art], [Sepia], [Negative], [B/W (Black/White)], or [Vivid]. Press OK Button to confirm; or touch the screen to select the item.

Normal	Images with nature color.
Art	Images with oil painting color.
Sepia	Images with sepia-toned color.
Negative	Images with negative color.
B/W	Images with black/white color.

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Vivid	Images with bright color.

6.3.9 Metering

1. Turn [On] the Digital Video Camera and make sure it is in the [DSC] mode.
2. Press [MENU] Button and press [4-way Direction] Button to select the [Metering] item. Press OK Button or touch the screen to display submenu.
3. Use [4-way Direction] Button to select [Center], [Average], or [Spot]. Press OK Button or touch the screen to confirm the setting.

Center	To preserve background details while letting lighting conditions at the center of the frame define exposure.
Averaged	For exposure to be evenly distributed around the selected frame.
Spot	To ensure correct exposure for the object even if the background is very bright or very dark.

6.3.10 AE ISO

1. Power [On] the Digital Video Camera and make sure it is in the [DSC] mode.
2. Press [MENU] Button and press [4-way Direction] Button to select the [AE ISO] item. Press OK Button or touch the panel to display submenu.
3. Press [4-way Direction] Button to select [Auto], [100], [200], [400], [800], [1600], [3200], or [6400]. Press OK Button or touch the panel to confirm.

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6.3.11 EV Compensation

Use this function to adjust the value of EV compensation, which is ranged from -2.0EV to +2.0EV (at 0.3EV increment). The higher the EV value, the brighter the image will be.

1. Power [On] the Digital Video Camera and make sure it is in the [DSC] mode.
2. Press [MENU] Button and press [4-way Direction] Button to select the [EV Compensation] item. Press OK Button or touch the screen to display submenu.
3. Press [4-way Direction] Button to increase/decrease the value. Press OK Button or touch the screen to confirm.

6.3.12 Backlight

1. Power [On] the Digital Video Camera and ensure it is in the [DSC] mode.
2. Press [MENU] Button and press [4-way Direction] Button to select the [Backlight] item. Press OK Button or touch the screen to display submenu.
3. Press [4-way Direction] Button to select [Off] or [On]. Press OK Button or touch the screen to confirm.

6.3.13 Contrast

1. Turn [On] the Digital Video Camera and ensure it is in the [DSC] mode.
2. Press [MENU] Button and press [4-way Direction] Button to select the [Contrast] item. Press OK Button or touch the screen to display submenu.
3. Press [4-way Direction] Button to select [Normal], [High], or [Low]. Press OK Button or touch the screen to confirm.

Normal	Images with normal scenes.

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High	Images with brighter scenes.
Low	Images with darker scenes.

6.3.14 Sharpness

1. Power [On] the Digital Video Camera and make sure it is in the [DSC] mode.
2. Press [MENU] Button and press [4-way Direction] Button to select the [Sharpness] item. Press OK Button or touch the screen to display submenu.
3. Press [4-way Direction] Button to select [Normal], [High], or [Low]. Press OK Button or touch the screen to confirm.

Normal	Images with normal scenes.
High	Images with sharper scenes.
Low	Images with softer scenes.

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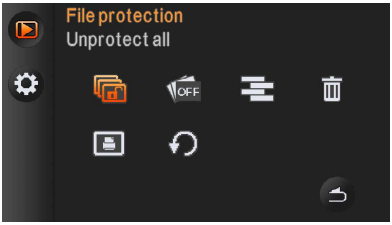
6.4 Menu Options of Photo Playback

6.4.1 File Protection

1. Turn [On] the Digital Video Camera and ensure it is in the [Playback] mode.
2. Press [MENU] Button and press [4-way Direction] Button to select the [File Protection] item; press OK Button or touch the screen to display submenu.



3. The locked icon will be shown to indicate the file is under protection.

Protect One	Protect one file.
Unprotect One	Unprotect one file.
Protect All	Protect all files.
Unprotect All	Unprotect all files.

Note:
Repeat above-mentioned steps to unlock the file. When the file is unlocked, the locked icon will disappear.

6.4.2 Slide Show Setting

1. Turn [On] the Digital Video Camera and make sure it is in the [DSC] mode.

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2. Press [4-way Direction] Button to select the [Slide Show Setting] item to enter into submenu; or touch the screen to select the item.
3. Use [4-way Direction] Button or touch the screen to choose [Off], [1 Second], or [3 Seconds]. The images will playback automatically.

6.4.3 Slide Show Effect

1. Turn [On] the Digital Video Camera and make sure it is in the [Playback] mode.
2. Press [MENU] Button and press [4-way Direction] Button to select the [Slide Show Effect] item; press OK Button or touch the screen to display submenu.
3. Use [4-way Direction] Button to select [Fading] or [Flying], press OK Button or touch the screen to display submenu.

6.4.4 Delete

1. Turn [On] the Digital Video Camera and make sure it is in the [Playback] mode.
2. Choose the to-be-deleted file and press the [MENU] Button/ [4-way Direction] Button down to select the [Delete] item; press OK Button to display submenu.
3. Use [4-way Direction] Button to select [Delete One], [Delete All], or [Delete Selections]. Press OK Button or touch the screen to confirm.
4. Press [4-way Direction] Button/touch the screen to choose [V] or [X] and press OK Button to delete file(s).

You can choose [Delete Selections] to delete certain file.

Delete One	Delete one file.
Delete All	Delete all files.
Delete Selections	Choose the file and delete.

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Note:
The files cannot be recovered once deleted. Therefore, please make sure you have a backup file before delete. The protect files will not be able to delete. You must unlock the file before deleting the protected file.

6.4.5 DPOF

Use DPOF (Digital Print Order Format) to mark the printing information stored in the memory card.

1. Turn [On] the Digital Video Camera and make sure it is in the [Playback] mode. Press [Playback] Button and then press [MENU] Button to show menu options of image playback; or touch the panel to select the item.
2. Press [4-way Direction] Button to select the [DPOF] item, and press OK Button or touch the screen to confirm.
3. Use [4-way Direction] Button and press OK Button to confirm; or touch the screen to choose the item. The DPOF icon will appear to indicate the file is in order for printing.

Notes:
1. A memory card is necessary for using DPOF function.
2. All videos/pictures are in order for printing after setting DPOF.

6.4.6 Rotate

1. Turn [On] the Digital Video Camera and make sure it is in the [Playback] mode. Then press [4-way Direction] Button to select your target image by pressing OK Button.
2. Touch the screen to select [MENU] or press [MENU] button, then press [4-way Direction] Button to select the [Rotate] item to enter into submenu; or touch the screen to choose the item.
3. Use [4-Way Direction] Button to select [Left 90] or [Right 90] and press OK Button to confirm; or touch the screen to select the item. The image will rotate left/right by 90 degrees.

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6.5 Setting Menu

Setting Menu can be applied on all kinds of the Digital Video Camera settings.

6.5.1 TV Type

1. Power [On] the Digital Video Camera and switch to [Setting] mode.
2. Press [4-way Direction] Button to select the [TV Type] item. Press OK Button or touch the panel to display submenu.

3. Use [4-way Direction] Button to choose [NTSC] or [PAL], then press OK Button or touch the screen to confirm.

Note:
The video resolution will be different due to various TV Type settings.

Setting reference of TV type based on the following country/region	
NTSC NTSC	America, Canada, Japan, Korea, Mexico, Taiwan
PAL PAL	Australia, Austria, Belgium, China, Denmark, Finland, Germany, UK, Italy, Kuwait, Malaysia, New Zealand, Singapore, Spain, Sweden, Switzerland, Thailand, Norway

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6.5.2 File Number (Default: Serial)

The file number can be set in this function.

1. Turn [On] the Digital Video Camera and switch to [Setting] mode.
2. Press [4-way Direction] Button to select the [File Number] item. Press OK Button or touch the screen to display submenu.
3. Press [4-way Direction] Button to choose [Reset]/ [Serial], then press OK Button or touch the panel to confirm.

Notes:
1. The file number will start from 0001 when setting to [Reset].
2. When setting to [Serial], the stored files will be in serial numbers.

6.5.3 Date/Time

Please refer to the chapter 2.7.1 “Setting Date/Time.”

6.5.4 Format

Use this function to format the memory card/ built-in memory.

1. Turn [On] the Digital Video Camera and switch to [Setting] mode.
2. Use [4-way Direction] Button to select the [Format] item. Press OK Button or touch the screen to display submenu.
3. Press [4-way Direction] Button to select [V] or [X] to confirm; or touch the screen to click the item.

6.5.5 Default Setting

Use this function to reset from all settings to default settings.

1. Power [On] the Digital Video Camera and switch to [Setting] mode.
2. Press [4-way Direction] Button to select the [Default Setting] item, then press OK Button or touch the screen to display submenu.

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3. Press [4-way Direction] Button/ touch the screen to choose [V] or [X], press OK Button or touch the screen to confirm.

6.5.6 LCD Brightness

This function is to adjust the brightness of LCD.

1. Turn [On] the Digital Video Camera and switch to [Setting] mode.
2. Use [4-way Direction] Button to select the [LCD Brightness] item, then press OK Button or click the screen to confirm.
3. Use [4-way Direction] Button to select [Low], [Medium], or [High], then press OK Button or touch the screen to confirm the setting.

6.5.7 Date/Time Stamp

This function is to stamp date/time on photos.

1. Turn [On] the Digital Video Camera and switch to [Setting] mode.
2. Press [4-way Direction] Button to select the [Date/Time Stamp] item, press OK Button to display submenu; or touch the screen to select the item.
3. Use [4-way Direction] Button to choose [Off], [Date], or [Date/Time], press OK Button or touch the screen to confirm the setting.

6.5.8 Auto Power Off

This function is to power off the Digital Video Camera to save energy after it is not in use for several minutes.

1. Power [On] the Digital Video Camera and switch to [Setting] mode.
2. Press [4-way Direction] Button to select the [Auto Power Off] item, then press OK Button or touch the screen to display submenu.

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3. Use [4-way Direction] Button to choose [Off], [3 min], or [5 min]. Press OK Button or touch the screen to confirm the setting.

6.5.9 Language

Please refer to chapter 2.7.2 “Setting Time/Date and Language.”

1. Turn [On] the Digital Video Camera and switch to [Setting] mode. Move [4-way Direction] Button left/right to select the [Language] item, and press OK Button or click the screen to confirm.
2. Press [4-way Direction] Button/touch the screen to select the following languages: English, Deutsch, French, Spanish, Italian, Japanese, Portuguese, Traditional Chinese, Simplified Chinese, Turkish, Russian, Thai, Arabian, and Korean.

6.5.10 Flicker

Use this setting to adjust the frequency system which corresponds to your local area.

1. Turn [On] the Digital Video Camera and switch to [Setting] mode.
2. Press [4-way Direction] Button to select the [Flicker] item, press OK Button or touch the screen to display submenu.
3. Press [4-way Direction] Button/touch the screen to select [Auto], [60Hz], or [50Hz]. Press OK Button or touch the screen to confirm.

Reference of frequency setting	
50HZ	UK, Germany, Spain, Italy, France, Netherlands, Portugal, Russia, China, Japan
60HZ	USA, Taiwan, Korea, Japan

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6.5.11 Information

This function is to show information on the LCD screen to help you taking better photos/movie clips.

1. Power [On] the Digital Video Camera and switch to [Setting] mode.
2. Press [4-way Direction] Button to select the [Information] item, and press OK Button or touch the screen to display submenu.
3. Use [4-way Direction] Button to select [Normal], [Histogram], or [Off]. Press OK Button or touch the screen to confirm.

6.5.12 Sound

Use this function to adjust the sound volume.

1. Turn [On] the Digital Video Camera and switch to [Setting] mode.
2. Press [4-way Direction] Button to select the [Sound] item. Press OK Button or touch the screen to display submenu.
3. Press [4-way Direction] Button to select [High], [Medium], [Low], or [Off], then press OK Button or touch the screen to confirm.

6.5.13 LCD Correction

This function is to correct the accuracy of LCD touch screen.

6.5.14 Start Logo

Use this function to set up the image shown on the screen when the Digital Video Camera is turned on.

1. Power [On] the Digital Video Camera and switch to [Setting] mode.
2. Press [4-way Direction] Button and choose the [Start Logo] item, press OK Button or touch the screen to display submenu.

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3. Press [4-way Direction] Button to select [Default Setting] or [User Setting]. Press OK Button/touch the panel to choose the item.

6.5.15 Digital Zoom

1. Power [On] the Digital Video Camera and make sure it is in the [DV] mode.
2. Press [MENU] Button and press [4-way Direction] Button to select the [Digital Zoom] item. Press OK Button or touch the screen to display submenu.
3. Press [4-way Direction] Button to select [Off], [X10], or [Maximum]. Press OK Button or touch the screen to confirm.

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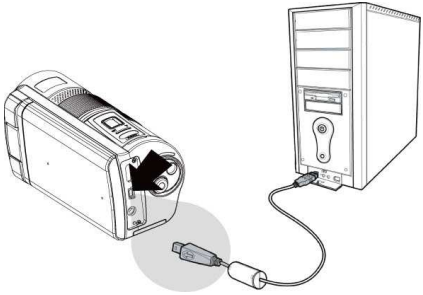
7 PC and TV Connection

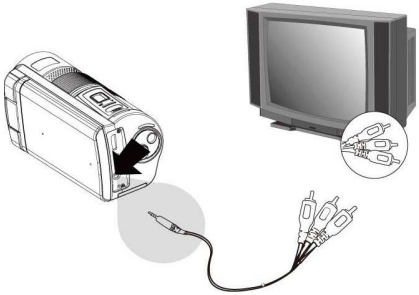
7.1 Connecting to the Computer

As shown below, use the provided USB cable and connect the Digital Video Camera to a PC for file transmission.



7.2 Connecting to TV

- As shown below, use the provided video cable and connect the Digital Video Camera to a TV.



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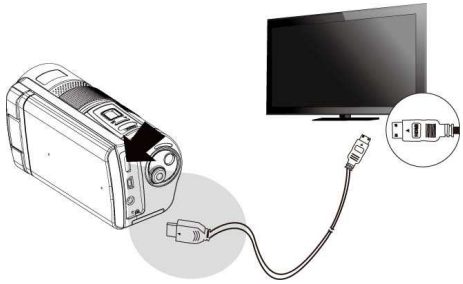
- As shown below, use the provided HDMI cable to connect the Digital Video Camera to a TV for high resolution picture display.



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8 Installing the Software

1. Place the attached CD ROM into the CD player.
2. If the CD does not execute automatically, please use Windows File Manager to execute the **Install_CD.exe** file in the CD.

   The following screen will be shown up.

3. Press the [Menu] item to start the installation process according to the instructions on-screen.

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9 Editing Software

ArcSoft Total Media Extreme (TME) ™ manages your media for you, and gives you tons of fun and exciting ways to create and share projects featuring your photo, video, and music files. Edit, enhance and add creative effects to your photos. You can

- Create your own movies or photo slide shows complete with soundtrack.
- Upload your files easily to YouTube™!
- Or share them through simple email attachments or popular photo printing.
- You can go to http://www.arcsoft.com/ for more information.

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10 Appendix

Specifications

Sensor	Aptina 10 Mega Pixels, 1/2.3 inch CMOS
Zoom	10X optical zoom Digital zoom: Still: 60X ,Video: 120X Playback: Up to 10X
Lens	F = 3.58 (W) ~ 3.64 (T) f = 6 ~ 60 mm
Focus range	Movie Record: 10 cm ~ Infinity Capture Mode: 10 cm ~ Infinity (Wide); 100 cm ~ Infinity (Tele) Macro: 10 cm (Wide)
LCD	3.5” LCD 230k pixels
Movie Mode	Full HD 1920x1080; HD 1280x720; WVGA 848x480; Web 432x240
Image Resolution	16M (4608 x 3456 interpolated) 10M (3648 x 2736) 3:2 (3648 x 2432) 16:9 (3648 x 2048) 2M (1824 x 1360)
Shutter Speed	Auto: 1/4000 ~ 1/2 sec. Night: 1/4000 ~ 2 sec.
Power Source	1200 mAh CA-NP40 rechargeable Lithium-Ion battery
Storage Type	SD/SDHC compatible (up to 32 GB)

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File Format	Still Image: JPEG (EXIF 2.2 compatible) Video: MOV
Dimensions / Weight	123.5 x 55 x 59.2 mm 330 g (without battery & SD card)
Interface	Digital output: USB 2.0 compatible Audio / Video output: NTSC/PAL; HDMI
Accessories	Quick Guide / Lithium-Ion battery / AV Cable / HDMI cable / USB cable / Software CD ROM / Adaptor / Hand Strap / Pouch

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Troubleshooting

Problem	Possible Cause	Solution
Can not turn on the power of Digital Video Camera.	1. The Battery is not inserted correctly. 2. The Battery is dead.	1. Please insert the battery correctly. 2. Replace the battery.
Pictures are not stored in the memory.	Power off before storing the images.	Please change to a new battery when the battery indicator turns to red color.
Camera shutdown when using Self-timer shooting picture.	The Battery in camera is dead.	Change to a new battery.
Images are out of focus	Object exceeds the range of focus.	Refocus by zooming in/out.
Unable to use the external memory card.	1. Memory card is protected. 2. Memory card contains non-DCF images taken by other cameras.	1. Unlock the memory card. 2. Reformat the memory card. Please make sure to backup the file before reformatting memory card.
All buttons can not work or camera hangs.	Short circuit occurred when connecting the camera to other device.	Take out the battery in the camera and re-insert again.

Technical support

For technical assistance, free driver updates, product information, and news releases, visit the following web site:

http://www.BenQ.com

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